\( P \)  Principal  
\( n \)  number of periods over which interest is earned  
\( r \)  interest rate per period  

**Future Value**  
\[ S = P(1 + r)^n \]

**Present Value**  
\[ P = S(1 + r)^{-n} \]

\( R \)  regular payment  
\( n \)  number of periods  
\( r \)  interest rate per period

**Present Value of an Ordinary Annuity**  
\[ A = R \left( \frac{1 - (1 + r)^{-n}}{r} \right) \]

**Present Value of an Annuity Due**  
\[ A = R \left( \frac{1 - (1 + r)^{-n}}{r} \right) (1 + r) \]

**Future Value of an Ordinary Annuity**  
\[ S = R \left( \frac{(1 + r)^n - 1}{r} \right) \]

**Future Value of an Annuity Due**  
\[ S = R \left( \frac{(1 + r)^n - 1}{r} \right) (1 + r) \]

**Periodic payment into Sinking Fund**  
\[ R = S \left( \frac{r}{(1 + r)^n - 1} \right) \]

**Periodic payment of an Amortized Loan**  
\[ R = A \left( \frac{r}{1 - (1 + r)^{-n}} \right) \]

\[ \log_b(xy) = \log_b x + \log_b y \]

\[ \log_b \left( \frac{x}{y} \right) = \log_b x - \log_b y \]

\[ \log_y x = \frac{\log_b x}{\log_b y} \]